

I considered further that by the breadth of the hole F through which the Light enters into the Dark Chamber, there is a Penumbra made in the circuit of the Spectrum Y, and that Penumbra remains in the rectilinear Sides of the Spectrums P T and *pt*. I placed therefore at that hole a Lens or Object-glass of a Telescope which might cast the Image of the Sun distinctly on Y without any Penumbra at all, and found that the Penumbra of the Rectilinear Sides of the oblong Spectrums P T and *pt* was also thereby taken away, so that those Sides appeared as distinctly defined as did the Circumference of the first Image Y. Thus it happens if the Glass of the Prisms be free from veins, and their Sides be accurately plane and well polished without those numberless waves or curles which usually arise from Sand-holes a little smoothed in polishing with Putty. If the Glass be only well polished and free from veins and the Sides not accurately plane but a little Convex or Concave, as it frequently happens; yet may the three Spectrums Y, P T and *pt* want Penumbras, but not in equal distances from the Prisms. Now from this want of Penumbras, I knew more certainly that every one of the circles was refracted according to some most regular, uniform, and constant law. For if there were any irregularity in the Refraction, the right Lines A E and G L which all the circles in the Spectrum P T do touch, could not by that Refraction be translated into the Lines *ae* and *gl* as distinct and straight as they were before, but there would arise in those translated Lines some Penumbra or crookedness or undulation, or other sensible Perturbation contrary to what is found by Experience. Whatsoever Penumbra or Perturbation should be made in the circles by the cross Refraction of the second Prism, all that Penumbra or Perturbation would be conspicuous in the

the right Lines *ae* and *gl* therefore since the Lines are straight in those right Lines. Since the distance of the Spectrum is not many meters of the circle Tangents continue in the first Prism the same Proportion. And seeing all the Rays in the same manner when they are refracted and again in a fourth Prism the Rays of one Prism are of the same Refrangibility compared to one another, and in degree of Refraction constant Proportion.

There is yet another experiment by which it is convincing. Let the Spectrums be placed at equal distances after the first Prism. Suppose in the middle of the oblong Spectrum the first Prism make the Spectrum, π 1 Part Sideways to form a straight Line. And you will find the Spectrums inclined to that Spectrum alone without the other distant from the Spectrum and by consequence the end π of the Image of the Refraction in the more refracted than